

ENTOMOLOGICAL MEDICAMENTS OF THE PAST

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A reading of Dr. Loren C. MacKinney's article on "Animal Substances in *Materia Medica*, A Study in the Persistence of the Primitive," which appeared in "The Journal of the History of Medicine" (I(1) : 149-170, 1946) has led me to compile the following records of the use of insects in medicine during past times. Dr. MacKinney mentions insects only incidentally and without details as this was outside the scope of his paper. The present paper is not concerned with insects in combination with magic nor with the extensive use of other animal substances, which far exceeded the use of insect substances. Insects, of course, played only a small part in the medicaments used in former times. They were greatly outnumbered by other animal substances and these, in turn, were exceeded by vegetable substances. Mineral substances were used less than the animal ones.

Insect substances were used in external and internal medicines. Some were used as fumigants, suppositories, etc. Most of the insect remedies were in use much earlier than the times in which their compilers lived. For example the *materia medica* of the Egyptians, as shown by the Papyrus Ebers, compiled in the sixteenth century B.C., includes the remedies of earlier centuries. And the books of Dioscorides who wrote in Nero's time show that the Greeks used animal remedies just like the Egyptians who preceded them. According to the writings of Celsus and Pliny the Elder who lived in the first century A.D., and later of Galen, the *materia medica* of the Roman Empire partook of the characteristics of many previous ages and regions. In fact Pliny compiled all ancient remedies including those of Rome during his time and many of these persisted in Western Europe right into modern times. Later writers continued to perpetuate these remedies and we find them mentioned in writings of the late eighteenth and early nineteenth centuries.

In the following preliminary list no attempt has been made to identify the species of insects involved in the various remedies

and they have been arranged only by orders. The sources are indicated briefly in the text and more fully in the bibliography. It should be possible to extend this list by further search and no claim is made for completeness.

ORDER ORTHOPTERA

Records of Orthoptera used in medicine include the following. Robert James, quoting Dioscorides said "grasshoppers in a suffumigation relieve under a dysury [difficult micturition] especially such as is incident to the female sex," and that the *Locusta Africanus* is a very good remedy against the poison of the scorpion (James, Med. Dict.). A species of grasshopper *Tettigonia verrucivora* common in Sweden, was used by the natives to bite the warts on their hands, the black fluid which the insects emitted supposedly possessing the power of making warts disappear [Good, Study of Med., iv, 515]. In addition the eggs of the "Chargol" locust were used by Jewish women who placed them in their ears to prevent earache [Smith, Bib. Dict.].

Pliny stated, "the criquet called *Gryllus* doth mitigat catarrhs and all asperities offending the throat; also if a man doe but touch the amygdals or almonds of the throat, with the hand wherewith he has bruised or crushed the said criquet, it will appease the inflammation thereof." Also that it was good for the ears if dug up and applied together with the soil in which it was found. According to Dr. James the ashes of *Gryllus domesticus* were supposed to have diuretic properties. The body fluid dropped into the eyes was a remedy for weak sight and helped disorders of the tonsils if rubbed on them [Kunzé]. Kunzé wrote that Dr. J. M. Honigberger made a mother tincture of *Locustra migratoria* by triturating their bodies, minus the head, and appendages, into a paste and adding enough alcohol for a menstruum. He called it Locusteam and advised its use for bleeding piles and thirst.

ORDER BLATTARIA

Sloane wrote that the Indians of Jamaica drank the ashes of cockroaches as a physic. These insects, bruised and mixed with sugar were applied to ulcers as a suppurative. They were also

given to children to kill worms [Hist. of Jamaica, II: 204]. In Russia *Periplaneta orientalis* was powdered and used for dropsy. It was also used as a remedy for pleurisy and pericarditis. In Russia the medicine was known as Tarakané and on the Continent it was sold under the name Pulvis Tarakanæ.

ORDER DEMAPTERA

Oil of earwigs was good "to strengthen the nerves under convulsive motions, by rubbing it on the temples, wrists and nostrils." The earwigs when dried, powdered and mixed with the urine of a hare were recommended for introduction into the ear as a cure for deafness [James, Med. Diet.].

ORDER ANOPLURA

Schroeder in his "History of Animals that are Useful in Physic" stated that lice were swallowed by country people for the cure of jaundice. Dioscorides said that they were used in suppression of the urine, by introducing them into the canal of the urethra. Elscherif wrote that a patient suffering from quartan fever would, in the experience of some, get relief, if a louse was put into the opening of a bean and swallowed. And Dr. Brickell stated that hog lice were good in all obstructions, jaundice, colic, king's evil, old sordid and rebellious ulcers, convulsions, stone, gravel, rickets in children, dimness of sight, etc.

ORDER HEMIPTERA

Pliny quoting Dioscorides mentions the various medical virtues of the bed-bug, *Cimex lectularius*, as follows. It neutralizes the venom of serpents; mixed with the blood of a tortoise it was applied externally to warts; used as a fumigant, it made leeches loosen their hold; a mixture of bugs crushed with salt and woman's milk, was used to annoint the eyes; in combination with honey and oil of roses, they were used as an injection for the ears; they were used in the treatment of lethargy and in strangury cases they were injected into the urinary canal. In addition Dr. James in his "Medical Dictionary" stated that the odor of the bugs relieved hysterical suffocation and that if seven bugs were swallowed with beans, as food, they would help in cases of quartan ague, if eaten previous to the accession of the

fit. Some homeopathic physicians said that bed-bugs were suitable for children suffering from worms, epileptic attacks, etc.

SUBORDER HOMOPTERA

Cicadas were long used for diuretic and other purposes. Even as late as 1929 they were being utilized by the peasants of Provence [Myers]. They were mentioned by Dioscorides in the first century A.D., and later by Galen, both recommending roasted cicadas for bladder trouble. Galen advised that five to seven cicadas, with pepper, be eaten for colic and for years following, later physicians prescribed them for this purpose. A mixture of powdered cicadas and oil of scorpions was used as a counter irritant [Buckton]. Mufet (1634) cited eleven authorities for their use in medicine. According to Hearn (1900) they were used as earache cures in China and Japan. Boiled in water with certain plants they were given to children for fever and convulsions and also used for skin wounds. Their cast skins were preserved for medicinal uses and sold in Chinese and Japanese shops.

Among an aboriginal tribe of India, the Sañtáls, an ointment of cicadas and male crickets was used for screaming fits [Bodding]. Known to the Chinese as Ch' ant' ui, dried cicadas were used in various ways for many diseases, including sterility, rheumatic pains, evil eye, menstrual irregularities, etc. Their most effective use was against hydrophobia, for which they were taken in wine with cantharides. A Chinese species, *Elata limbata* secretes a kind of grease that adheres to the twigs of trees and hardens into a wax-like substance. When melted and purified it was employed by Chinese doctors as a preventive of palpitations and swoonings. Various workers have investigated the chemical and therapeutic properties of dried cicadas, with conflicting results.

Aphids were used, by homeopathists, in a tincture, and a trituration was also made of living aphids with sugar of milk, the species having been *Aphid chenopodii glauci* [Kunzé]. Several species of Coccidæ, in addition to furnishing dyes, were used in medicines. According to Geoffroy, *Coccus ilicis* and *Coccus cacti* were "esteemed to be greatly cordial and sudorific, being

very full of volatile salts." They were administered to prevent abortion from strain or injury. Galen stated that the freshly collected insects, "kermes berries" possessed cooling and drying properties, being moderately astringent. Elschérif claimed that if a woman took a dram of *Coccus ilicis* in honey, every day for a week, the menstrual flow would be checked. When taken with vinegar it acted as a contraceptive and when the insects were worn as a necklace on a fever patient, the fever would disappear.

In the "United States Dispensatory," cochineal or *Coccus cacti* was recommended for whooping cough and neuralgia, being supposed to have anodyne properties. The Pela wax of China, deposited by *Coccus pela* on a species of ash tree, was used for medicinal and other purposes. Honigberger stated that the Hakims of India believed cochineal to be destructive of the generative faculty. Folsom states that in the Mediterranean coccids of the genus *Kermes*, living on oak, supply a medicinal syrup and that in Mexico, another coccid *Llavecía axinus* produces a substance known as axin which is used in external medicine and also as a varnish.

ORDER LEPIDOPTERA

A remedy against the bites of venomous animals and insects was, said Dioscorides, the larva of *Pieris brassicæ*, if rubbed in with oil. Ealand mentions the larvæ of *Euproctis chrysorrhæa* and of *Bombyx processionea* having been used as ingredients of certain homeopathic tinctures. Doctor Brickell, in his "Natural History of North Carolina," records oil of clothes moths as a cure for deafness, warts and leprosy. If mixed with tar they were thought to be good for "all sorts of rebellious ulcers, botches, scabs, whittles, etc." Doctor James mentions a caterpillar that feeds upon cabbage leaves, the *Eruca officinalis* of Schroeder, if bruised or in the powdered form as being capable of raising a blister like cantharides. Hippocrates stated that they were also good for quinsy.

As for *Bombyx mori*, the larvæ of this moth, dried and powdered, were applied to the crown of the head in cases of vertigo and convulsions [James, Med. Dict.]. The cocoons of *Bombyx mori* were used as one of the ingredients of "Goddard's Drops" and of "Confectio de Hayacintho" [Kunzé]. According to

Elscherif the larvæ of *Bombyx mori*, if dried and tied up in red linen and carried about, would cure a patient of fever.

ORDER COLEOPTERA

Coleopterous insects were used quite frequently in entomological materia media. Doctor Honigberger wrote of the cocoons of *Larinus maculatus* being imported into Lahore from Hindustan, and sold in the shops of drug-dealers in Constantinople. They were used frequently by Turkish and Arabian physicians in the form of a decoction believed to be helpful in diseases of the respiratory organs. A liter of boiling water was poured over about fifteen grams of the cocoons before the weevils emerged. After stirring for 15 minutes and then boiling, the decoction was drunk, unfiltered, by the patient. In Syria and Persia the natives used the cocoons of *Larinus nidificans* and *Larinus syriacus* [Zool. Med., Paris, 1859].

Professor Gerbi, during the latter part of the eighteenth century, published at Florence the history of a curculio that he named *Curculio anti-odontalgicus*. Fourteen or fifteen larvæ of this species were rubbed between the thumb and forefinger until the fluid was absorbed. If an aching tooth was touched with either the thumb or forefinger thus prepared, the pain would disappear. Unless touched to an aching tooth, the finger would retain its pain killing property for a year [Mon. Mag. ii, part II, 792, 1796].

Under the name "horns of scarabæi," the mandibles of the stag beetles *Lucanus cervus*, and *Scarabæus cornutus* were utilized as "an absorbent in cases of pains or convulsions supposed to be produced by acidity of the primæ vitæ" [Cuvier, An. King. Ins., i, 533]. An infusion of the beetles was recommended by Schroeder for pain in the ears. Pliny said that parents used to hang the beetles around the necks of young babies as a remedy for many illnesses, and that if tied about the necks of children, the beetles enabled them to retain their urine. Powdered *Scarabæus pilularius*, "sprinkled upon a protuberating eye or a prolapsed anus is said to afford singular relief" according to Schroeder, also that a preparation made by boiling the beetles in oil, was useful in reducing the pains of blind hemorrhoids.

These remedies were repeated by Doctor James in his "Medical Dictionary." Galen said that oil in which Scarabæi had been roasted was good for earache, deafness, hemorrhoidal swellings, and the bites of scorpions. Elseherif recommended that the juice of Scarabæus, be applied to the eye, in minute quantities, for weakness and loss of sight. Such were the virtues of dung beetles.

Church-yard beetles, *Blaps* spp., prepared with oil were applied for ear troubles, and used externally for all sorts of dermoid affections. In Egypt and the Levant, *Blaps sulcata* was in addition used against scorpion bites. Women of the Nile country ate this species in order to become plump. According to Pliny other species of *Blaps* were good for leprosy, king's evil, wounds, bruises, scabs, etc. The bodies, minus heads, were bruised and applied to the affected parts of the patients' bodies. Sometimes they were mixed with resin or honey. The musk beetle *Aromia moschatus*, of the Cerambycidæ, when dried and powdered was used as a vesicatory and acted like cantharides [Drury, Ins., 1, 9].

Lady-bird beetles, Coccinellidæ, were once used for colic and measles. If one or two are mashed and put into the cavity of a tooth, the pain will be relieved [Jaeger, Life of Amer. Ins., p. 26]. Both Galen and Dioscorides refer to *Dermestes typographicus* as vesicators and the same species was used by Arabian physicians for opening abscesses. The powdered insects rotted the flesh when exposed to it sufficiently. In the Lampyridæ, Cardan said that some of the species had anodyne properties and Doctor James stated that the entire insect was used in medicine against the stone.

Relative to the blister beetles, Meloidæ, Pliny said that these were used externally with grape juice or sheep suet and were very good for the cure of leprosy and lichens and acted as an emmenagogue and diuretic for which reason Hippocrates used to prescribe them for dropsy. The dried bodies of the blister beetles possess strong vesicating properties. Used externally they produce blisters and when used internally, they are a powerful stimulant. Oil expressed from the beetles was used in Germany against hydrophobia and in Sweden in the cure of rheumatism, by anointing the affected parts. Doctor James

said that taken in powder, the oil cured the vari or wandering gout. In liquor, it was useful in wounds and it was also used in plasters for "pestilential bubo" and carbuncles. An oil was prepared by the infusion of the living insects in common oil. According to Elgâfaki the powdered drug was mixed with vinegar and used against lice and the itch. Elseherif recommended a weak maceration of oil and cantharides for earache. Arabian physicians used blister beetles both externally and internally for their diuretic and aphrodisiac properties.

Of the Buprestidæ, Pliny said that *Buprestis* incorporated with goat suet took away the tetter called "lichenes" that occur in the face. Referring to beetles of this family Doctor James wrote, that all, in common were "inseptic, exulcerating" and possessed "a heating quality" for which reason "they were mixed with medicines adapted to the cure of Carcinoma, Lepra, and the malignant Lichen. Mixed in emollient pessaries, they provoke the catemenial discharge." However the Buprestis of the ancients may not be the same genus now and possible they were referring to Meloidæ or Cicindelidæ.

ORDER HYMENOPTERA

The Bedeguar or rose gall produced by *Cynips rosæ* was used against diarrhœa and dysentery, and also for scurvy, stone and worms [Cuvier, An. King., Ins., ii, 424]. Cuvier also mentions a gall on thistle, which was carried in the pocket as a remedy against hemorrhages. Many galls are full of tannin and were used medicinally and in the arts. Oak galls are astringent and the best were supposed to come from the Levant.

As for ants, Doctor James said that these insects "heat and dry and incite to venery." Their acid smell refreshed the vital spirits and they were said to cure the "Flora, Lepra, and Lentigo." Their pupæ were effective against deafness and corrected the facial hairiness of children when rubbed thereon. The oil of the house ant, by infusion was good for gout and palsy [Med. Dict.]. Formic acid from ants was long known as a rubefacient. The old "Spiritus Formicarum" of the Prussian Pharmacopœia was made by macerating two parts of bruised ants in three parts of alcohol and filtering. Schroeder prescribed an

ant preparation for leprosy and for gout and palsy. In Thuringia, a spirit of ants was rubbed on parts of the body in cases of rheumatism and in Russia the same disease was treated by pouring boiling water on ants in a vapor bath [Ealand]. Sloane said that the Spaniards of the West Indies had a valued medicated earth which he thought consisted of ant nests [Hist. Jamaica, ii, 221]. And Owen wrote that if a person holds in his left hand, the grain of wheat that is carried by an ant and if this is wrapped in a "skin of Phoenician dye" and tied around the head of his wife, it will prove to be the "cause of abortion in a state of gestation" [Geoponica, ii, 148-9]. Elscherif of the Arabian School of Medicine thought that ants were a powerful aphrodisiac. His words on this subject were, "Take one hundred of large, black ants and macerate them for three weeks in half an ounce of not very heavy oil. Herewith annoint the urethral orifice to accelerate erections, tension of the yard and a free discharge of the fluids." Kunzé said that Maine lumbermen ate the large black ants, found in pine forests, as an anti-scorbutic.

In Hindustan and Lahore, according to Doctor Honigberger, *Mutilla antiguensis* was used by native physicians against snake bites and colic in horses, and was kept by the druggists. Wasps and hornets were formerly used in veterinary medicine. Doctor James said, "the combs of the hornet are recommended in a drench for that disorder in horses which Viagetius calls scrophula, meaning, I believe, what we call the strangles." For distemper and cold in the head, hornets' nests were smoked under the noses of horses. Honigberger stated that the nests of *Vespa crabro* had anti-spasmodic properties and that the "yellow wasp" had properties of some importance [Kunzé]. Dr. John Hamilton in 1893, writing of *Polistes*, said that although stinging might be a palliative in some chronic forms of rheumatism, it could not, from the nature of the disease, possibly effect a cure. He believed however that enough authentic examples existed to show that it might be used to advantage in certain neuralgic affections.

Doctor James in his "Medical Dictionary" said that the salts of bees, Apidæ, were volatile and "highly exalted" and that when dried, powdered and taken internally they were diuretic and diaphoretic. If this powder was mixed with unguents and applied

to the head, it was supposed to "contribute to the growth of hair upon bald places." A tea made by pouring boiling water upon bees was prescribed for violent strangury. Dried powdered bees given to either man or beast "will often give immediate ease in the most excruciating pain, and remove a stoppage in the body when all other means have failed" [James].

Bees, venom, honey and wax, as remedies, were frequently mentioned by ancient writers including Hippocrates, Celsus, Pliny, Galen, etc. In Cuba the wax of stingless bees was used in removing corns and in southern Brazil the wax of *Trigona quadripunctata* var. *bipartita* was regarded highly by the natives for salves and plasters [Schwarz]. According to Ransome, in the Syriac Book of Medicine honey is mentioned in more than 300 prescriptions and wax in over fifty. Doctor James said, "all wax is heating, mollifying and moderately incurning. It is mixed in sorbile liquors as a remedy for dysentery, and ten bits of the size of a grain of millet, swallowed, prevents the curdling of milk in the breasts of nursing women." Elmansuri of the Arabian school recommended that honey be given to old men and those of a cold nature, and Dioscorides claimed detergent and diuretic properties for honey.

In 1935 there was published in New York, a book by Dr. Bodog F. Beck entitled "Bee Venom Therapy." In this work Doctor Beck reviews the use of bee venom therapy, with case records, relative to the use of injectable bee venom in cases of muscular rheumatism, neuritis, neuralgia, acute rheumatic fever, acute and chronic arthritis, etc., and also call attention to the research work still needed and to the variability of the injectable bee venom on the market when his book was written. Doctor Beck's work contains much historical matter such as the use of bees as medicine by the Celtic, Teutonic and Gallic races. Crushed bees, with honey was applied externally for ophthalmia, toothache, sore gums and carbuncles. Dried powdered bees constituted the principal ingredient in many remedies. To cure hydrophobia 12 or 15 freshly killed bees were put in water and the patient took one swallow of this two or three times a day. In Slavic countries today bees cooked with cereals such as barley and corn are used as a diuretic to cure "hydrops." In the "New London

Dispensatory," 1716, Salmon said, "The whole Bee in powder given inwardly provokes Urine, opens all stoppages of Reins, breaks the Stone, they are good against Cancers, Schirrus Tumors, the King's Evil, Dropsie, dimness of Sight, for being taken a good while they waste the Humor and restore Health; so their Ashes, both made into an Oyntment . . . cause Hair to grow speedily in bald places." Bee stings were supposed to cure podagra (gout of the foot).

Many homeopathic physicians used Apis internally in the form of tincture and infusum, and they were successful in the treatment of hydrocephalus of children [Beck]. In Philadelphia in 1876 at the World Congress of Homeopathy, H. Goullon read a paper on Apis and its medicinal qualities. Previously or in 1858, C. W. Wolf, homeopathic physician of Berlin, wrote about the poison of the honey bee as a therapeutic agent. Bees were found to be efficacious in ophthalmia, all inflammations of the mucus membrane, the tongue, mouth, throat, larynx; in the respiratory tract, for coughs, etc. And they were given extensively for gastritis, nausea, vomiting, distension, dysentery, etc., and used for arthritis, rheumatism and intermittent fevers. Carbuncles and furuncles were cured by covering them with a mixture of honey and crushed bees. Around 1925 an ointment containing bee venom and called Forapin was manufactured in Germany and was supposed to possess rubefacient and vesicant properties. Physicians reported this ointment to be useful in chronic arthritis, sciatic neuritis and muscular rheumatism [Beck].

ORDER DIPTERA

Pliny quoting Varro, said that the heads of flies, applied fresh to a bald spot constituted a "convenient medicine for the said infirmity." Some used the blood of flies and others mixed the ashes of flies and paper for application to bald places. Pliny also said that Mucianus carried about him a live fly wrapped in a piece of linen in order to preserve him from ophthalmia. Diodorus according to Pliny prescribed the taking of four flies internally with rosin and honey for the jaundice and for persons who "were so streight-winded that they could not draw their breath but sitting upright." The larvæ of bot-flies (Oestridæ) were used by the ancients as a cure for epilepsy [Kirby & Spence].

ORDER ARANEIDA

Pliny wrote that the cobweb of the common "fly-spider" applied to the forehead, across the temples, in a compress, was useful in defluxions of the eyes. However, the web had to be gathered by a boy who had not reached puberty. In addition the boy must not show himself to the patient for three days and during that period neither the boy nor the patient must touch the ground with their bare feet. Pliny also wrote that the thick pulp of a spider's body, mixed with oil of roses, was a remedy for the ears, and that albugo was cured by an ointment made of a spider and old oil. Furthermore, cobwebs were useful when applied with oil and vinegar to a fractured cranium. Cobwebs were also used in stopping bleeding from cuts made while shaving.

Moufet in his "Theatrum Insectorum," records the use of spiders in curing gout. The spider was caught when neither the sun nor moon were shining. The legs were pulled off and the body was put into a deer's skin and bound to patient's foot where it was left for some time. He also wrote that an ordinary spider's web, made into a little ball, placed on a wart, set on fire, and allowed to burn to ashes would roast the wart by the roots and it would never grow again. By swallowing a spider in drink, a woman who was troubled with a "timpany" was cured. In "Domestic Medicine" by Doctor Graham, pills made of spider webs were prescribed for the ague and intermittent fevers. Doctor Chapman in "Elements of Materia Medica and Therapy," Philadelphia, 1825, said that with doses of five grains of spiders' webs, repeated every fourth or fifth hour, he had cured "obstinate intermittents, suspended the paroxysms of hectic, overcome morbid vigilance from excessive nervous mobility, and quieted irritation of the system from various causes, and not less as connected with protracted coughs and other chronic pectoral affections."

The foregoing remedies are all found in the previous works of Galen and Dioscorides. Many homeopathic physicians used spiders in their medicines for reducing swelling of the spleen, hæmoptysis and hemorrhages from all organs, violent headaches, etc. Tinctures were made by using one part of the live spider to five parts alcohol, by weight, macerating for eight days and filtering.

In conclusion it may be said that cantharidin, extracted from the bodies of blister beetles, and used principally in certain diseases of the urinogenital system, has many rivals. Formic acid is now manufactured synthetically. And although dipterous maggots of the genus *Wohlfahrtia* have recently been utilized in cleaning up decayed tissue and bacteria, this method is being displaced by the use of synthetic substances derived from urea.

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